

WHAT IS CLAIMED IS:

1. A thermocurable pressure sensitive adhesive composition, said composition comprised of at least one pressure sensitive adhesive, at least one multifunctional monomer or oligomer, at least one free radical initiator, and optionally a crosslinking agent.

2. The thermocurable pressure sensitive composition of claim 1, wherein said pressure sensitive adhesive comprises tackified natural rubbers, synthetic rubbers, tackified styrene block copolymers, polyvinyl ethers, acrylic adhesives, poly-alpha-olefins, silicone adhesives, and mixtures thereof.

3. The thermocurable pressure sensitive composition of claim 1, wherein said multifunctional monomer is a difunctional monomer selected from the group consisting of 1,6-diacrylates, 1,4-butanediol diacrylate, ethylene glycol diacrylate, diethylene glycol diacrylate, tetraethylene glycol diacrylate, tripropylene glycol diacrylate, neopentyl glycol diacrylates, 1,4-butanediol dimethacrylate, hexane diol diacrylate, poly(butanediol)diacrylates, tetraethylene glycol dimethacrylate, 1,3-butylene glycol diacrylate, triethylene glycol diacrylate, triisopropylene glycol diacrylate, polyethylene glycol diacrylate, diallyl maleate, diallyl phthalate, bisphenol A dimethylacrylate, and mixtures thereof.

4. The thermocurable pressure sensitive adhesive composition of claim 1, wherein said multifunctional monomer is a trifunctional monomer selected from the group consisting of trimethylolpropane triacrylate, trimethylolpropane trimethacrylate, pentaerythritol monohydroxy triacrylate, trimethylolpropane triethoxy triacrylate, ethoxylated trimethylolpropane triacrylate, pentaerythritol triacrylate, and mixtures thereof.

5. The thermocurable pressure sensitive adhesive composition of claim 1, wherein said multifunctional monomer is a tetrafunctional monomer selected from the group consisting of pentaerythritol tetracrylate, di-trimethylolpropane tetraacrylate, and mixtures thereof.

6. The thermocurable pressure sensitive adhesive composition of claim 1, wherein said multifunctional monomer is a pentafunctional monomer comprising pentaerythritol pentaacrylate.

7. The thermocurable pressure sensitive adhesive composition of claim 1, wherein said adhesive is present in an amount of from 25-90 % by weight, said multifunctional monomer or oligomer is present in an amount of from 5-55 % by weight, said free radical initiator is present in an amount of from 0.5-10 % by weight, and said optional crosslinking agent is present in an amount of up to 5% by weight.

8. The thermocurable pressure sensitive adhesive composition of claim 1, wherein a crosslinking agent is present selected from the group consisting of isocyanates, aziridines, anhydrides, amines, metal chelates, and mixtures thereof.

9. The thermocurable pressure sensitive adhesive composition of claim 1, in the form of a tape comprised of said adhesive composition on a backing layer.

10. The thermocurable pressure sensitive adhesive composition of claim 1, in the form of a tape comprised of said adhesive composition between two release liners.

11. In a method for the production of a semiconductor chip, wherein a wafer chip is attached to a pressure sensitive adhesive layer during the chip manufacturing process during which a diced chip is produced, the improvement wherein said pressure sensitive adhesive is a thermocurable pressure sensitive adhesive composition comprised of at least one pressure sensitive adhesive, at least one multifunctional monomer or oligomer, at least one free radical initiator, and optionally a crosslinking agent, and said adhesive composition is heated to a temperature sufficient to thermocure said adhesive composition subsequent to processing of said diced chip to permit removal of said diced chip from said adhesive.

12. The method of claim 11, wherein said pressure sensitive adhesive comprises tackified natural rubbers, synthetic rubbers, tackified styrene block copolymers, polyvinyl ethers, acrylic adhesives, poly-alpha-olefins, silicone adhesives, and mixtures thereof.

13. The method of claim 11, wherein said multifunctional monomer is a difunctional monomer selected from the group consisting of 1,6-diacrylates, 1,4-butanediol diacrylate, ethylene glycol diacrylate, diethylene glycol diacrylate, tetraethylene glycol diacrylate, tripropylene glycol diacrylate, neopentyl glycol diacrylates, 1,4-butanediol dimethacrylate, hexane diol diacrylate, poly(butanediol)diacrylates, tetraethylene glycol dimethacrylate, 1,3-butylene glycol diacrylate, triethylene glycol diacrylate, triisopropylene glycol diacrylate, polyethylene glycol diacrylate, diallyl maleate, diallyl phthalate, bisphenol A dimethylacrylate, and mixtures thereof.

14. The method of claim 11, wherein said multifunctional monomer is a trifunctional monomer selected from the group consisting of trimethylolpropane triacrylate, trimethylolpropane trimethacrylate, pentaerythritol monohydroxy triacrylate, trimethylolpropane triethoxy triacrylate, ethoxylated trimethylolpropane triacrylate, pentaerythritol triacrylate, and mixtures thereof.

15. The method of claim 11, wherein said multifunctional monomer is a tetrafunctional monomer selected from the group consisting of pentaerythritol tetracrylate, di-trimethylolpropane tetraacrylate, and mixtures thereof.

16. The method of claim 11, wherein multifunctional monomer is a pentafunctional monomer comprised of dipentaerythritol pentaacrylate.

17. The method of claim 11, wherein said adhesive is present in said composition in an amount of from 25-90 % by weight, said multifunctional monomer or oligomer is present in an amount of from 5-55 % by weight, said free radical initiator is present in an amount of from 0.5-10 % by weight, and said optional crosslinking agent is present in an amount of up to 5% by weight.

18. The method of claim 11, wherein a crosslinking agent is present selected from the group consisting of isocyanates, aziridines, anhydrides, amines, metal chelates, and mixtures thereof.

19. The method of claim 11, wherein said adhesive composition is heated to a temperature in the range of from 70 to 180 ° C.